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ABSTRACT

A study was conducted to analyze the sociodemographic determinants of participation, satisfaction, and persistence in American adult education in order to formulate recommendations for public policy regarding access to lifelong learning opportunities. Data were collected from questionnaire responses by a sample of 79,631 adults. Of the total sample, 9,173 respondents were identified as participants in adult education. Findings indicated that the most powerful predictor of participation in adult education is amount of formal schooling. The second most powerful predictor of participation in adult education is age. Family income and black racial status have little effect on participation in adult education. In addition, it was found that low socioeconomic status in combination with being young and black has a pronounced negative effect on persistence. Adults who enroll in adult basic education and high school completion programs are four times more likely to drop out than are other adult education participants. (Four recommendations for public policy are listed and discussed.) (LRA)

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Participation and Persistence in American Adult Education

Implications for Public Policy and Future Research from a Multivariate Analysis of a National Data Base

Direction Papers in Lifelong Learning

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What is FDLS?

The Future Directions for a Learning Society (FDLS) program is a major effort toward the realization of a learning society in the United States. The program focuses on improving access and transition for learners, which has been the Board's role in education for more than 75 years. By building on recent Board programs that have increasingly focused on adults, the program extends its historic role to include assistance to adult learners and to the diverse agencies, institutions, and organizations that provide learning opportunities for them.

Funded by the Exxon Education Foundation, FDLS develops consensus and support for strategies, services, and policies that can best meet current and projected needs of participants and providers in a learning society. To this end, the program solicits and relies on the participation of professional people in the field, public policymakers, and the larger community. A major purpose of the Exxon grant is to promote the mobilization of additional funds and other resources necessary for major initiatives in this developing field. The initial support covers the project's planning and management, the identification and design of service areas, the review and analysis of public policy, and publishing relevant materials.

The program will produce projections of future trends, information about the needs of learners and providers of educational opportunities and resources, policy recommendations, and services.

The program is engaged in finding better ways to gauge the needs of learners, in identifying the problems institutions face in meeting learners' needs, in strengthening learning opportunities, and in increasing public, professional, and political understanding of the field. A chief focus of the program is to demonstrate promising new approaches and specific services.

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R.A.
G.D.

Preface

Lifelong learning has undergone dramatic growth in this decade. National surveys estimate that between 17 million and 32 million adults are currently participating in classes, workshops, job training, discussion groups, or some other form of organized instruction. Since 1970, part-time degree credit enrollment has increased from 32 to more than 40 percent of total college enrollment. Students 25 to 34 years of age accounted for half of the increase in enrollment of community and junior colleges, and a third of the increase in enrollment at four-year colleges between 1970 and 1977.

The demand for lifelong learning opportunities by the American public is large. A College Board survey disclosed that there are 40 million Americans who need instruction and support services related to career transition, and George Gallup found that 60 million persons wish to take one or more adult learning courses right now.

Yet, the following populations are significantly underrepresented in organized learning activities for adults: blacks, people with less than a high school education, people with annual family incomes under $8,000, people aged 45 or older, and people living in central cities or on farms.

From the perspective of both policy makers and program planners, many purposes would be served if we could explain participation, persistence, and satisfaction in adult learning programs. We would not only gain insights on how to achieve equal access to educational opportunities but would also gain new knowledge on the elements of program design that facilitate adult learning.

Until now, no researchers have attempted to explain participation, persistence, and satisfaction in formal adult learning programs through the use of the national data base on adult learning--the triennial survey conducted by the Bureau of the Census and the National Center for Education Statistics on participation in adult education.

This report is one of several supported by the Future Directions for a Learning Society (FDLS) program at the College Board to gain new insights about the learning undertaken by adults. FDLS will release shortly Americans in Transition: Life Changes As Reasons for Adult Learning by Carol B. Aslanian and Henry M. Brickell. Their report examines the dynamics of adult learning beginning with the question, "What causes an adult to seek learning?"

The research efforts in this report and the forthcoming work, Americans in Transition, are helping to focus the research questions we have about adult learners. At this stage of the movement toward the learning society, those well-focused questions may be as important as having the final answers.

Rexford G. Moon, Jr.
September 4, 1979

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Summary and Recommendations

EQUAL OPPORTUNITY FOR ADULT LEARNERS

Equality of educational opportunity for America's young people was a dominant concern of educational policymakers in the 1960s and 1970s. As we enter the 1980s with heightened awareness of education as a lifelong process, equality of educational opportunity for adults has become a major policy issue. The concern is to insure that all Americans, regardless of race, age, sex, and socioeconomic status have equal access to the education and training opportunities that help to promote social mobility, economic independence, and individual and social well-being. The social and institutional forces that affect equality of educational opportunity for adult students are very different from those that affect young people. The role of the public school, so dominant in the education of children, is much less central in the education of adults. Although the effects of segregation and discrimination are still felt, they are not in themselves major barriers to educational opportunity in the adult years. Perhaps the crux of the difference is that adults are voluntary learners. To a considerable extent, adults themselves decide whether they will learn, what they will learn, and where they will learn. Thus, equality of opportunity is in part a matter of choice and the constraints and barriers that impinge on choice.

PURPOSE OF STUDY

Because of the voluntary nature of adult education, policymakers concerned with enhancing access to lifelong learning must first give careful attention to current patterns of participation. To be of maximum value to policymakers and researchers, however, analyses of the characteristics of participants and nonparticipants should go beyond currently available descriptive statistics to ask fundamental questions about the interrelationships of key factors such as age, sex, race, and socioeconomic status as they affect participation. For example, it is not sufficient to know that black men and women are underrepresented among adult education participants. We need to look beneath the surface, using statistical controls, to determine to what extent factors associated with race (such as educational attainment) might provide a more basic explanation of black underrepresentation. It is important, too, that researchers examine not only participation, but the closely related phenomena of learner persistence (dropout) and satisfaction if a fuller understanding of participation-related processes is to be ob-

tained. Finally, if participation research is to be of use to policymakers, it must give particular attention to subgroups of the adult population that are known to suffer handicaps or to have special educational needs. Factors affecting the participation of women, older adults, unemployed people, and other groups that have special needs may very well differ from the norms for the public at large.

In brief, if the independent effects of such key factors as age, race, income, and amount of formal schooling can be determined, it may be possible to identify policy interventions that might increase access to lifelong learning for all Americans.

The questions addressed by this study can be summarized as follows.

What are the most important factors that distinguish adult education participants from nonparticipants for the American population as a whole and for the following groups: women in the labor force, older adults, socioeconomically disadvantaged adults, unemployed adults, adult participants in higher education, and participants in adult basic education and high school completion programs?

What are the most important factors associated with persistence (dropout) in adult education for participants in general, and for the above groups?

What are the most important factors related to learner satisfaction with adult education for participants in general and for the above groups?

What are the implications of the findings for public policy and future research concerned with enhancing access to lifelong learning?

These questions have been raised before and examined to some extent by other studies. However, there are several important features which, taken together, distinguish this research from other studies of participation:

- The analysis is grounded in a powerful statistical procedure (multiple regression) particularly appropriate for clarifying complex interrelationships among many variables.
- The analysis is applied not only to the total adult population but also to subgroups of special interest to educational policymakers.
- The data base is comprehensive, reliable, and the most recent available.
- The study examines persistence and satisfaction in conjunction with participation.
- The research is explicitly designed to address the concerns of decisionmakers, policy analysts, and researchers.

DATA BASE

The study is based on data collected in 1975 by the United States Bureau of the Census for the National Center for Education Statistics.[1] The data consist of questionnaire responses from a sample of 79,631 people 17 years of age or older who were not full-time students. Of the total sample, 9,173 were identified as participants in adult education. Adult education was defined to encompass any kind of organized education including but not limited to workshops, classes, and private instruction offered through organizations such as schools, colleges, community agencies, and churches, or by employers. Those who were engaged in self-education projects were not, however, included as participants.

STATISTICAL PROCEDURE

Because the statistical method of multiple regression is central to the present study, a brief, nontechnical explanation is necessary. Basically, multiple regression is a correlational technique that is used when one wishes to examine a set of independent variables (e.g., age, sex, race) in relation to a single dependent variable (e.g., participation in adult education). Multiple regression provides an estimate of the independent or net effect of each independent variable on the dependent variable. Consider the following illustration. We want to know how age, educational attainment, occupational status, and income are associated with participation. If we were to take each variable and correlate it separately with participation, the results would be of limited value. For example, if we found a high association (correlation) between income and participation, we might wonder if it were really caused by income level or by the fact that people with high incomes tend to have high levels of educational attainment. The same kind of question is obviously relevant to age and occupational status. All our independent variables are interrelated and therefore their effects on participation need to be examined jointly and separated out. What multiple regression does is to control each individual independent variable on all other independent variables. The result is a standardized regression coefficient, or Beta weight, that provides a measure of the net or direct effect on each independent variable on the dependent variable. To return to our example, we find that educational attainment and age have the strongest direct association with participation, occupational status has a somewhat weaker association with participation, and income is barely related at all to participation when other variables are controlled.

Multiple regression analysis does not "prove" that one factor "causes" or leads to another. To return to our illustration, all we can conclude is that educational attainment is associated with participation when the effects of certain related variables are held constant, and that income, which in simple analyses seems to be highly associated with participation, shows little association when we control for related factors such as amount of schooling.

PRINCIPAL FINDINGS

The findings presented below are those that appear to have the greatest relevance for policy decision making and future research regarding access to lifelong learning. The findings can be considered highly reliable, if not definitive. Each finding is accompanied by a commentary intended to provide a broader perspective for interpreting its meaning and significance.

1. Finding. The most powerful predictor of participation in adult education is amount of formal schooling. Educational attainment exerts effects that are independent of other components of socioeconomic status such as income and occupation.[2]

Comment. The effects of formal schooling are most evident when we compare participation rates for the extremes of the schooling continuum, for example college graduates versus eighth grade dropouts. Such comparisons make adult education look more elitist than it is. Educational attainment is only one of many factors that affect participation.

2. Finding. The second most powerful predictor of participation in adult education is age. Older adults are less likely to participate than are younger adults. Like schooling, age exerts effects on participation that are independent of related variables such as income and occupational status.

Comment. If a similar study had been done a decade ago, the effects of age in all likelihood would have been more pronounced. Since 1969, participation by adults aged 55 and over has increased 55.2 percent. In the same period, the total population of adults 55 and over increased only 11.5 percent.[3]

3. Finding. Family income appears to have little effect on participation in adult education. Low income adults are underrepresented among participants, but this is mainly caused by other factors associated with poverty such as low educational attainment.

Comment. It is important to note that proportionately more low income adults participated in adult education in 1975 than in 1969.[4]

4. Finding. Black racial status has little effect on participation in adult education. Although black adults are underrepresented among participants, this can be explained by factors associated with race such as low educational attainment. With these other factors controlled, black adults are slightly more likely than are nonblacks to participate in adult education.

Comment. When one looks at actual rates of participation for black adults between 1969 and 1975, there is little cause for complacency. In the six-year period, the rate of increase for blacks was about half as great as that for whites. It might be noted, however, that the number of black adults who were full-time students in high school or college increased nearly 40 percent during the same period.[5]

5. Finding. Female sex status is not a barrier to participation in adult education. When other factors associated with sex are controlled, women are slightly more likely to participate in adult education than are men.

Comment. As in the case of older adults, if this study had been conducted a decade ago, the findings regarding sex would have been different. Since 1969, participation by women has greatly increased. While male participation increased 18 percent, female participation increased by a startling 44.7 percent.[6]

6. Finding. Geographical access or proximity to organizations that provide adult education has a direct positive effect on participation rates.

Comment. This conclusion is based on the fact that residence in the West enhances rates of participation. West Coast states, particularly California with its 104 community colleges, provide greater access to school- and college-sponsored adult education than do most other states. A more direct measure of access would probably have shown a much stronger association with participation.

7. Finding. Eligibility for veterans' benefits (that is, an educational entitlement) has a modest but positive association with participation in adult education.

Comment. This new finding has obvious implications for the policy debate concerning educational entitlements. The GI bill, of course, is targeted on a specific group and the educational benefits are substantial.

8. Finding. The most powerful predictor of persistence in adult education

is satisfaction with the learning activity in terms of its "helpfulness" in meeting one's objectives.

Comment. Despite this statistical finding, satisfaction appears to account for only a small part of whatever it is that causes adults to drop out from educational pursuits. It is interesting to note that reported satisfaction with the "helpfulness" of adult education courses or other learning activities was very high. Only 11 percent of participants reported being dissatisfied.

9. Finding. Age, educational attainment, and race show a modest but consistent relationship with persistence in adult education. Younger adults are more likely to drop out than are older adults, as also are adults with fewer years of formal schooling and black adults.

Comment. The finding concerning age should put to rest the debate on this issue because of the contradictory findings of past studies. It might be noted that age affects participation and persistence in opposite ways, older adults being less likely to participate, but more likely to persist once they do.

10. Finding. Low socioeconomic status (lack of high school diploma and income in the lower quartile of the sample) in combination with being young and black has a pronounced negative effect on persistence.

Comment. The dropout rate for adults who are young, black, ill-educated, and poor is (not surprisingly) very high. Considered individually, each of these factors has only a slight negative impact on persistence. Considered jointly, the effects of these factors on persistence is striking.

11. Finding. Adults who enroll in adult basic education and high school completion programs are four times more likely to drop out than are other adult education participants. Among participants in adult basic education and high school completion programs, young adults, blacks, and those with the least formal schooling are considerably more likely to drop out than are others.

Comment. It might be observed that those who need adult education the most are not only less likely to participate in the first place but less likely to continue to participate once enrolled.

12. Finding. Despite a very large and representative sample and data on a large number of seemingly important variables, only 10 percent of the variance associated with participation and with persistence could be accounted for statistically. In other words, 90 percent of whatever it is that leads adults to participate in and drop out from adult education has not been identified by this or by other similar studies conducted in the past.

Comment. Sociodemographic variables such as age, sex, income, and schooling appear to play a relatively modest role in influencing the educational participation and persistence behavior of American adults. While variables such as age and schooling are of interest to policymakers because they identify groups that are potential targets for educational intervention, they are of relatively modest importance if one wishes to explain and predict participation and persistence in adult education. Future research needs to employ more sophisticated conceptions of the participation process that include personal and situational variables (e.g., attitudes toward education, life change events such as marriage, job loss, and retirement, and awareness of adult education opportunities)

that can reasonably be postulated to affect the nature and timing of engagement in further learning activities.

RECOMMENDATIONS

A cardinal principle for deriving conclusions and recommendations from empirical research is to stick close to the facts. In reviewing the facts of this study, particular emphasis was given to evidence of gross disadvantage in educational opportunity as indicated by participation and persistence data. For certain population subgroups, such as women in the labor force, no evidence of such disadvantage was found. However, this group almost certainly has special needs that affect opportunity to participate in adult education--for example, needs related to child care, educational costs and vocational counseling--but documentation of such needs was not within the scope of this study. The recommendations that follow, therefore, do not address all the problems and inequities faced by various groups of adult learners. To attempt to do so would be to go beyond the facts at hand. Only four recommendations are presented. Two deal with groups that the data show to be acutely disadvantaged and the other two concern the educational entitlement concept and the need for additional research. Each recommendation is followed by a commentary that discusses supporting evidence and explores implications and problems.

1. Recommendation. Highest priority should be given to policies and programs designed to increase educational opportunity for socioeconomically disadvantaged young adults.

Comment. The data show that access to lifelong learning opportunities is sharply restricted for young adults who suffer from the multiple handicaps of low educational attainment, low income, and minority racial status. Not only is the rate of participation by these young adults--aged approximately 17 to 25--disproportionately low, but they are much more likely than are others to discontinue attendance once enrolled in an educational program. Put plainly, the persons least likely to enjoy equality of educational opportunity in the public schools as children and adolescents are least likely to profit from continuing education opportunities as adults--particularly as young adults. These young people are generally functionally illiterate, jobless, and lacking a high school credential as well as the skills necessary to obtain and hold a job. Simple social justice as well as the cost/benefit assumptions of human capital investment theory argue strongly for policies and programs to meet the special needs of this acutely disadvantaged sector of the adult population. The nature of these special needs cannot be discussed here, but it is clear from youth unemployment statistics and studies of adult basic education programs that current vocational training and adult basic education provisions fall far short of meeting them.[7]

2. Recommendation. High priority should be given to policies and programs designed to increase educational opportunity for older adults.

Comment. Older adults, particularly those past 60, the poorest, and the least educated, are much less likely than are younger adults to take advantage of lifelong learning opportunities. The reasons for lower participation by older people are complex, but the handicaps popularly associated with old age probably constitute only a small part of the explanation. It is pertinent in this regard to note that the age-related decline in participation begins in the 30s, although it increases sharply in advanced middle age. It is not, moreover, confined only to older people who are

socioeconomically disadvantaged. What does seem significant is a pattern of role shifts and life changes that begins to develop in middle age and accelerates as one gets older: children grow up and leave home, careers reach a plateau, spouses die, retirement occurs, and so forth. Historically, adult education has not concerned itself with such life change events of middle and old age. Instead, educational activities have been heavily oriented toward the developmental concerns of young adulthood and early middle age--that is, toward work and family life.

In recent years there has been an increase in educational programming for older adults and concomitantly a sharp rise (55 percent between 1969 and 1975) in participation by people 55 years old or more. Whether this trend will continue is uncertain because of the heavy reliance of many programs on short-term, unstable funding. Ways must be found to promote the development and institutionalization of programs geared specifically to the developmentally related needs of aging and the aged. Without institutionalized change in a wide range of provider organizations (not just schools and colleges), it is unlikely that older persons will become more fully engaged in lifelong learning activities.

Of course it can be argued that scarce resources should not be allocated to the education of older adults if society is to receive a maximum return on its investment. However, even on narrow utilitarian grounds, a case can be made that many of the socioeconomic and health problems of the aged that are so costly to society in dollar terms can be ameliorated by educational intervention. (This is an area, however, where much more research on costs and benefits is needed.) The strongest arguments for increasing access to learning opportunities for older people are probably not economic ones, however, but arguments based on social equity and humane conceptions of the public interest.

3. Recommendation. The educational entitlement concept should be tested and its effects on access to lifelong learning opportunities carefully ascertained.

Comment. The evidence shows that eligibility for GI veterans' benefits is associated with increased participation in adult education. By inference, a targeted civilian entitlement of a similar nature might be expected to increase civilian participation significantly. While it is premature to implement an untested entitlement scheme, there is reason to experiment with one or more entitlement plans under carefully controlled conditions. Such experimentation should be accompanied by rigorous evaluation of outcomes. Moreover, since socioeconomically disadvantaged adults have the greatest need and the least access to lifelong learning opportunities, the experimental target group should be selected on the basis of severity of educational and economic handicap.

4. Recommendation. High priority should be given to the support of research designed to further our understanding of the basic processes underlying participation and persistence in adult education.

Comment. One of the study's more surprising findings was the small degree of variance explained by the regression equations for participation and persistence. In terms of sociodemographic characteristics such as sex, race, schooling, and so on, it is fair to conclude that people who participate in adult education are not on the whole much different from people who do not participate, and persisters are not very different from dropouts. Thus our understanding of the dynamics of participation and persistence, our ability to explain and predict these phenomena, is still very limited. Yet without a better understanding of why people partici-

pate or do not participate, persist or do not persist, there is little prospect for identifying ways to enhance access to adult education and to minimize the personal and social costs of attrition.

A related research priority that has been almost totally ignored is the study of participation as an independent variable: the study of its outcomes rather than its antecedents. Much research has been done on the outcomes of school and college experience, but very little on the outcomes of participation in adult education. Do disadvantaged adults who earn a high school diploma get better jobs, continue their education at the postsecondary level, or feel better about themselves? Do health-care professionals who participate in continuing education increase their competence as practitioners? The importance of such questions is self-evident, but there has been little financial support for research that could provide some answers.

Research on participation also needs to move beyond the stage of descriptive surveys to more conceptually sophisticated studies designed to build and test theory. A number of different paradigms or perspectives seem promising, depending on how the problem is conceptualized. For occupationally oriented adult education, a cost/benefit model derived from economics would seem potentially useful, and at least one study has employed this approach.[8] Other researchers have used a psychological paradigm to investigate the structure of motivational orientations.[9] A decision-making model incorporating both individual and environmental variables has been proposed by a Swedish scholar.[10] Clearly, some advances have been made toward more adequate conceptual frameworks for studying participation, but significant progress is unlikely to occur until financial support for fundamental research is greatly increased.

Much of the preceding rationale for more support of research on participation applies to research on persistence as well. We now know a good deal about who drops out, but very little about why one person drops out and another persists. The problem is particularly acute for the least advantaged segment of the population enrolled in job training and adult basic education programs. For this group the social and personal costs of attrition are enormous. As with participation, an understanding of the reasons for persistence and dropping out is essential before effective preventive measures can be taken. Most of the many "dropout" studies have been descriptive, methodologically weak, and based on small, unrepresentative samples. What is needed now are not more descriptive surveys comparing dropouts and persisters on variables that may or may not be meaningful, but research that attempts to develop or test conceptual frameworks that have explanatory and predictive utility. Only a few such studies have been attempted. Examples include Boshier's work on the concept of congruence between learners' expectations and the characteristics of learning environments,[11] a study by Irish that employed the conceptual tools of behavioral psychology to analyze the relationship of persistence to the net reinforcement of class attendance,[12] and research by Darkenwald focusing on sociocultural differences between teachers and learners in relation to persistence behavior.[13] These studies and perhaps a few more constitute the entire corpus of conceptually grounded research on persistence and dropout in adult education.

We know little about the economic, psychological, and social forces that affect participation and persistence in adult education. Unless government agencies and private foundations provide support for basic research on these problems, decision makers will be severely handicapped in their efforts to devise policies and programs in support of equal educational opportunity for Americans of all ages.

Technical Report

OBJECTIVES OF THE STUDY

The general purpose of the research was to analyze the sociodemographic determinants of participation, satisfaction, and persistence in American adult education in order to formulate recommendations for public policy regarding access to lifelong learning opportunities. The study is based on a secondary analysis of data collected in 1975 by the Bureau of the Census for the National Center for Education Statistics. The data consist of questionnaire responses from a representative sample of 79,631 adults, 17 years or older. Specific research objectives include the following:

To identify the key sociodemographic variables associated with participation in adult education and to determine the relative importance of each in regard to participation behavior.

To identify the key sociodemographic variables associated with satisfaction and persistence and to determine the relative importance of each in regard to persistence and satisfaction.

To identify the key sociodemographic variables associated with participation and persistence in adult education for the following population subsets and to determine the relative importance of each variable in regard to participation and persistence:

Women in the labor force
Older adults
Socioeconomically disadvantaged adults
Unemployed adults
Adult part-time participants in higher education
Participants in adult basic education and high school completion programs (ABE/HSC).

To formulate recommendations for future research and public policy that may be used to promote increased access to lifelong learning opportunities.

RELATED RESEARCH

The following brief review is focused mainly on large-scale national studies directly related to the nature and purpose of the present investigation. Emphasis is given to research concerned principally with sociodemographic variables (e.g., age, sex, income, educational attainment). Since previous national surveys have been similar in purpose, method, and

findings, particular attention will be given to the landmark study Volunteers for Learning.[14] Although its descriptive findings are more than 10 years old, this study remains the definitive work on participation because of the breadth and depth of its analysis, its excellent methodology and its use of certain multivariate data analysis techniques.

Participation in Adult Education. One problem in reviewing the research on participation is that the major national studies are not directly comparable because of differences in methodology and definitions of key variables such as "adult" and "adult education." Nonetheless, if one looks only at participation behavior and its relationship to the most commonly employed sociodemographic variables, the general pattern that emerges is remarkably similar across studies and time periods. We shall first present a brief description of the principal national surveys and then summarize the findings of interest here according to each of the major sociodemographic variables.

The first major study, Volunteers for Learning, was conducted in 1962 and published three years later. The survey was based on a probability sample of 11,957 households and netted information on the learning activities of 23,950 adults. Adults were defined as "All householders 21 years of age or over; or under 21 but married; or under 21 but head of a household; plus all persons 21 or over who live on an armed forces base and have close family ties with some adult member of an American household; and anyone 21 or over and living in a school residence or dormitory and closely related to some household member." The estimated size of this population in June 1962 was 114 million. Johnstone and Rivera found that 26,120,000 adults participated in some form of adult education between June 1961 and June 1962. Adult education was broadly defined to include any systematic learning activity, including self-education. It is noteworthy that of the 26 million participants (1 adult in 5), some 8,960,000 (about 36 percent) were engaged in self-education.[15]

In 1972, Educational Testing Service conducted a survey intended to be a partial replication of the Johnstone and Rivera study.[16] The survey was based on a national probability sample of 2,515 households. The universe consisted of all people between the ages of 18 and 60 who were living in private households and were not full-time students in mid-1972, estimated to be 104 million. As in the Johnstone and Rivera study, adult education was broadly defined, and included self-education. ETS researchers found that 32,240,000 adults (nearly 1 in 3) participated in some form of adult education activity in 1972. Of these, 17 percent were engaged in self-directed learning.

The National Center for Education Statistics has produced comprehensive reports on participation in adult education for 1969, 1972, and 1975.[17] A great virtue of these reports is their standardization of definitions and measures, thus permitting reliable comparisons of participation phenomena on a longitudinal basis. The data base for the NCES reports is determined partly by the sampling procedures of the Current Population Survey of the Bureau of the Census, which collects the data for the NCES. Participants are defined as people 17 years of age or over not enrolled full time in school or college. Adult education is broadly defined as any organized educational activity (including classes, workshops, courses taken by correspondence or through the mass media). However, unlike the Johnstone and Rivera and ETS studies, self-education is not included in the NCES definition of adult education. Total participation reported by NCES was 13,041,000 in 1969; 15,734,000 in 1972 and 17,059,000 in 1975.

The NCES reports emphasize descriptive statistics but also include some multivariate cross-tabulations. A re-analysis of the 1972 NCES data by Froomkin (including some 1969 and 1975 data) contains a larger number of multivariate (mostly two-way) tables and some logit and regression analyses.[18]

Participation. The influence of age, sex, educational attainment, occupational status, income, race/ethnicity, geographical factors, and other variables on participation are summarized below.

1. Age. All national surveys show that participation is proportionately greater by younger adults and that the rate of participation drops off sharply after age 55. However, young adults under 25 (many of whom are full-time students) do not participate at the same rate as those aged 25-34. Our own analysis of the NCES data for 1975 shows that 20.5 percent of adults aged 25-34 participate in adult education compared with only 2.3 percent who participate in the 55-64 age category. Age, in short, appears to be a major demographic determinant of participation.

2. Sex. Sex differences overall are negligible, although when type of participation is examined men more often enroll in vocationally oriented courses while women predominate in courses related to home and family living, religion, and certain other areas.

3. Educational attainment. All of the national surveys show a strong association between years of formal schooling completed and participation in adult education. Johnstone and Rivera, for example, found that only 10 percent of participants had eight years of schooling or less, a striking figure in view of the fact that in 1962 30 percent of the adult population had completed 8 years of school or less. Conversely, 11 percent of participants reported 16 years of schooling, while people with this degree of educational attainment comprised only 6 percent of the total adult population.[19] Since 1962, when the Johnstone and Rivera study was conducted, the educational attainment of American adults has increased significantly. Our own analysis of the 1975 NCES data shows that 16 percent of participants reported 16 years of schooling, while persons with this degree of educational attainment comprised about 8 percent of the adult population. Based on multivariate cross-tabulations with occupational status and income as the other independent variables, Johnstone and Rivera concluded that educational attainment has a much more potent effect on participation than these other components of socioeconomic status.[20] In short, the prior research indicates that educational attainment is a major sociodemographic determinant of participation behavior.

4. Occupational status. As noted above, occupational status is highly correlated with educational attainment and also with income. The 1972 ETS survey found that adults classified as "unskilled or semiskilled" accounted for 25 percent of the total population but only 16 percent of participants.[21] At the other end of the continuum, adults employed as professionals and managers comprised only 8 percent of the population but 16 percent of the participants. The Johnstone and Rivera and NCES surveys show similar patterns of participation in relation to occupational status. Johnstone and Rivera concluded that occupational status has less impact than educational attainment, but more impact than income in influencing participation behavior.[22]

5. Income. As with educational attainment and occupational status, income has been shown in all the national studies to exhibit a strong, linear association with participation. For example, our own analysis of the 1975 NCES data shows that only 6 percent of adults with family income of $4,000

to $4,999 participate in adult education. In contrast, the participation rate is nearly 20 percent for adults with incomes between $25,000 and $49,999.

6. Race/ethnicity. All the surveys show that black adults, and other racial/ethnic minorities such as Spanish-surnamed people, are underrepresented in the ranks of participants. Both the Johnstone and Rivera and ETS surveys reported that, in comparing blacks and whites, the former were underrepresented among participants by four percentage points. Our own analysis of the 1975 NCES data shows a slightly larger discrepancy, with an overall participation rate of 12 percent for whites and 6.6 percent for blacks. It is noteworthy, however, that when Johnstone and Rivera controlled for educational attainment, the differences between blacks and whites in rate of participation disappeared.[23] Thus it would seem that while blacks and other minorities are underrepresented, this may be due to their lower levels of educational attainment rather than to some other factor associated with race.

7. Geographical factors. A similar pattern is found in all the national surveys regarding the relationship of community type and geographical region to participation rates. Participation rates are highest in suburban areas, somewhat lower in the central cities, and lowest in small towns and rural communities. Johnstone and Rivera found that these patterns remained unchanged even after the introduction of educational attainment as a control variable.[24] Even more pronounced are the differences in participation rates by geographical region. All surveys show a greater proportional representation of adults living in the West. According to the 1975 NCES report, the participation rate (ratio of participants to eligibles) for the West was 17.9 percent, 10.9 for the South, 11.9 for the North Central states, and 10.5 for the Northeast.[25] Johnstone and Rivera found similar regional differences. Suspecting they might be due to the higher level of educational attainment in the West, this variable was introduced as a control but failed to affect the observed regional differences.

8. Other variables. Other sociodemographic variables that have been investigated by past researchers include religious affiliation, employment status, and marital status. Johnstone and Rivera found little difference in participation rates by religious affiliation and this variable has largely been ignored by subsequent researchers. All the surveys, including our own analysis of the 1975 NCES data, show a slight tendency for persons employed full-time to be overrepresented in the ranks of participants. Marital status alone does not appear to differentiate between participants and nonparticipants, although Johnstone and Rivera found that married women under 35 with children were less likely to participate than women with no children and considerably less likely to participate than married men of the same age with children. In contrast, men under 35 with children were more likely than men the same age without children to participate, a fact that Johnstone and Rivera attributed to the economic burden of supporting larger families since the participation differential for fathers was due to greater participation in vocationally-related courses.[26]

Summary. Despite differences in sampling design and definition and measurement of variables, the major national studies have yielded a remarkably consistent picture of the sociodemographic characteristics of participants in adult education. The purely descriptive aspects of this picture (e.g., blacks are underrepresented in proportion to their numbers in the population) are of less interest here than are the analytical findings (e.g.,

black underrepresentation is a function of lower educational attainment among blacks). The analytical findings, however, are scattered and tenuous. For the most part they are based on the 1962 Johnstone and Rivera survey that is now dated and which employed relatively crude cross-tabulation methods to examine a limited number of multivariate relationships. Nonetheless, the following generalizations have received enough research support to merit serious attention in our conceptualization of the present study. In terms of the overall phenomenon of participation (as opposed to participation in specific activities), sex, race, marital status, and employment status have little utility as predictor variables. Age, however, appears to be a major factor that is largely independent of other associated variables. Another clear finding is that suburban residents are more likely to participate than are urban residents, and both these groups are more likely to participate than are small town and rural residents. Another geographical factor is region, with participation considerably higher in the Western states--and this is true even when educational attainment is controlled. In regard to the components of socioeconomic status, educational attainment appears to exert a large independent effect and is perhaps, along with age, the most potent predictor of participation. Occupational status also seems to have a modest direct effect on participation, and family income to have some effect, but probably less than that of occupation.

Persistence and Satisfaction in Adult Education. Research on the relationship of sociodemographic variables to dropout behavior is abundant but, as noted in a recent review, most such studies are modest in scope, methodologically weak, and the findings have been largely inconclusive.[27] In the following brief review, we shall comment only on fairly well supported findings related to persistence as a function of sociodemographic characteristics.

In one of the more sophisticated earlier dropout studies, Knox and Sjogren used discriminant function analysis to examine the determinants of persistence for a large sample of students in university adult education classes.[28] Of the eight variables included in several separate analyses, three were sociodemographic: age, occupational status, and educational attainment. Age was negatively correlated with persistence and educational attainment positively correlated. The findings for occupational status were inconclusive. For the eight variables taken together, the maximum amount of variance explained was 12 percent.

Contrary to Knox and Sjogren, somewhat similar research by Boshier provided evidence that dropouts tend to be younger. This study of 2,436 New Zealand adult education participants also found that people that had had more schooling were slightly more likely to persist, while married adults were slightly less likely to persist. Using these and 26 other variables in a series of stepwise multiple regression analyses, Boshier was able to explain a maximum of only 10.9 percent of the variance associated with dropping out.[29]

In a recent review of 21 studies conducted between 1963 and 1973 in which dropouts were compared with persisters on sociodemographic variables, Irish reported contradictory findings in regard to sex differences in dropout behavior. Married people, however, were less likely to drop out than were unmarried people, although the reason for this is not clear.[30]

Turning to the national surveys of participation, little information is provided on the characteristics of dropouts with the exception of a few tables in the NCES reports and in the Froomkin re-analysis of the 1972

NCES data.[31] While these analyses are not sophisticated, they do provide the clearest, most up-to-date and most comprehensive picture of who drops out of adult education courses. Froomkin's re-analysis of the 1972 NCES data show: a moderately strong linear association between persistence and educational attainment, with persons of low educational attainment dropping out more frequently than those with more schooling; a slight tendency for females to drop out more than males; a clear tendency for "nonwhites" to drop out more than "whites"; and a moderately strong linear association between dropout and family income, with people in lower income categories dropping out more frequently than those in higher income categories.[32]

Research concerned directly with the relationship of participant satisfaction to sociodemographic variables is virtually nonexistent. The dearth of such research is probably related to the assumption that satisfaction is best measured behaviorally by examining dropout rates. However, while the two variables are obviously related, not all dissatisfied participants drop out nor are all dropouts necessarily dissatisfied with their experiences as learners.

In order to obtain some idea of the extent to which participants are satisfied with their experiences as adult learners, it is necessary to turn again to the 1962 Johnstone and Rivera survey. To measure satisfaction, Johnstone and Rivera employed the following question: "How much do you feel you benefitted from the course you took most recently--would you say a great deal, some, or not very much?" Overall, 63 percent responded "A great deal," 23 percent "some," and only 13 percent "not very much." Satisfaction ranged from a high of 83 percent for courses or other learning activities concerned with religion to lows of 52 percent for "academic subjects" and 51 percent for "public affairs/current events."[33] The relationship of satisfaction to sociodemographic variables such as age and educational attainment was not examined in Volunteers for Learning.

Summary. While there have been many modest studies of persistence and dropout behavior, most have employed small samples and crude data analysis techniques. The available research, however, suggests that some of the same factors that are positively related to participation are similarly related to persistence. Thus we might expect people with higher levels of educational attainment and income to persist in adult education and people of minority racial status not to persist to the same extent as others. The effects of age on persistence are not clear from the prior research. There has been even less research on satisfaction. Little is known about who is satisfied or dissatisfied with adult education and why.

DATA BASE AND METHODOLOGY

Data Base. Every three years, the National Center for Education Statistics, in cooperation with the Bureau of the Census, undertakes a national survey of participation in adult and continuing education. These surveys were established on a regular basis in 1969 and are included in the May edition of the Current Population Survey. The intent is to "provide insights about people and activities in the rapidly changing area of adult education."[34] The latest of these for which the data tapes are available was conducted in May 1975 and forms the data base for this study. Almost 90,000 people were canvassed in the 1975 survey. After excluding full-time students, 9,173 people were identified as participants in adult and continuing education and 70,458 people were identified as nonparticipants for a total sample of

79,631. Data from these two groups form the basis for our analysis of participation in adult and continuing education. The 9,173 participants engaged in 15,384 educational activities. For our study of persistence and satisfaction, these 15,384 educational activities form the focus of analysis.

Relatively comprehensive demographic and employment data are collected on each person in the survey and detailed additional information about educational activities is collected from participants. All these data were available for this study. Moreover, the Bureau of the Census provides a weighting system so that projections to the total population can be obtained.[35]

Definitions. Since this study is based on a secondary analysis of data collected by the Census Bureau for the National Center for Education Statistics, the following definitions are closely related to the questions and measures employed in that study.

Adult. An adult is anyone 17 years of age or over.

Participant. A participant is any adult not enrolled full time in a high school or college and not institutionalized who took part in some form of organized adult education, including but not limited to classes, workshops, and private instruction offered through organizations such as schools, colleges, community organizations, churches, or by employers. It is important to note, however, that people engaged in self-education or self-directed learning projects are not defined as participants.

Nonparticipant. A nonparticipant is any adult not enrolled fulltime in a high school or college and not institutionalized who did not take part in some form of organized adult education activity.

Dropout. A dropout is any participant who responded, "No, dropped the course" to the question: "Did you complete this course?" Other response options were "Yes" and "No, still taking this course."

Satisfaction. Satisfaction refers to a participant's subjective judgment concerning the helpfulness of the course or activity in meeting his or her objectives in participating. Satisfaction was measured on a five point scale in which the anchors were "Much more helpful than expected" and "Much less helpful than expected."

Adult Education. Adult education refers to any organized educational activity, excluding self-education, engaged in by anyone 17 years of age or older who is not a full-time student.

Women in the Labor Force. Adult women who are either employed or looking for work.

Unemployed. Adults who are without a job and seeking employment.

Low SES Adults. Adults who have not completed high school and who have family incomes in the lowest quartile of the sample.

Older Adults. Adults 60 years of age or older.

Higher Education Participation. Participation on a part-time basis in adult education activities, both credit and non-credit, sponsored by two-year and four-year colleges and universities.

Participation in "Adult Basic Education" and High School Completion (ABE/HSC). Participation of adults with less than 12 years of schooling in "adult basic education" (reading, arithmetic) or "citizenship training"

or high school completion courses. It should be noted that adult basic education is generically defined and does not apply exclusively to activities sponsored by the Adult Education Act of 1966 (P.L. 89-750, Amended).

Methodology. Cross-tabulations and least-squares linear regression were used for the analyses of participation, persistence, and satisfaction. The variables for the general analyses are listed in Table 1 with descriptive information.

For the subanalyses, selected variables were added and deleted. For example, sex was obviously eliminated as a variable from the analysis of women in the labor force. Marital status and number of children were entered as new variables. These changes are summarized in Table 2.

Participation. The dependent variable for the participation analysis was dichotomous. Thus, the regression is the equivalent of a two-group discriminant analysis and may be considered in that way. Eleven independent variables were introduced into stage-wise, ordinary least-squares linear regression. The model developed for the analysis was based on certain assumptions about the likely sequence of causal effects. To make such assumptions is not to deny the existence of interaction effects but only to specify the likely direction of main effects. Of course, these assumptions are tentative, but we agree with Blau when he asserts that "no meaningful analysis of social structures is possible if the investigator always vacillates . . . and refuses to commit himself to a predominant causal direction."[36] Accordingly, age, sex, and race were entered in the first stage because they must be seen as logically prior in any attempt to infer causal sequence in regard to the determinants of participation. Years of schooling was entered into the equations in the second stage. It was assumed that in a causal sequence educational attainment or schooling logically follows immutable personal characteristics and precedes status and situational variables such as occupation, income, and place of residence. The remaining seven variables were entered in the third and final stage, since any assumptions about their causal order in relation to participation would have been at best highly speculative. It was, however, assumed that income, occupational status, type of employment, place of residence, and eligibility for veterans' benefits would be unlikely to affect amount of formal schooling or personal characteristics; instead, we assumed the likely direction of causal effects to be the opposite. In the present analysis multicollinearity did not appear to be a problem.

Persistence. For this section of the study the unit of analysis was the activity.[37] The dependent variable was formed by the question on completion, "Did you complete this course?" If the respondent answered yes, the Persistence variable was given the value of 0. If he/she answered no, it was given the value of 1. If the respondent was still engaged in the activity, or if his/her response was invalid, the individual was dropped from this section of the analysis. Thus, a total of 3,432 cases were dropped leaving a sample size of 11,952.

Twenty-one independent variables were analyzed--again with an ordinary least-squares regression. All the variables used in the participation analysis were included. In addition, ten other variables were entered (see Table 1). The model for this section was similar to that for the analysis of participation. The three personal variables (age, race, and sex) were entered first. Schooling follows. At the third stage, situational and dispositional characteristics of the individual were entered. This model,

Table 1. Variables Used in General Analyses

Variable names	Description/ question	Operational definition	Used in analysis of* Participation	Satisfaction	Persistence
Participation	Participation in adult or continuing education.	0 - No 1 - Yes	D		
Persistence	"Did you complete this course?"	0 - Completed 1 - Dropped			D
Satisfaction	"Which one of the following statements best describes how helpful this course or activity was in meeting your objective?"	1 - Much less helpful than expected. 2 - Somewhat less helpful . . . 3 - As helpful . . . 4 - Somewhat more helpful . . . 5 - Much more helpful . . .		D	I
Age	Age of individual.		I	I	I
Race	Race of individual.	0 - Nonblack 1 - Black	I	I	I
Sex	Sex of individual.	0 - Male 1 - Female	I	I	I
Schooling	Highest grade attended.		I	I	I
Occupational status	In a high status white collar occupation, i.e., 1)professional, technical or kindred worker, or 2) manager or administrator.	0 - No 1 - Yes	I	I	I
Human services employment	Employed in the human services sector, i.e., health, education, religion, or welfare.	0 - No 1 - Yes	I	I	I

Table 1 (continued)

Variable names	Description/ question	Operational definition	Used in Analysis of* Participation	Satisfaction	Persistence
West	Living in Alaska, Arizona, California, Colorado, Idaho, Hawaii, Montana, Nevada, New Mexico, Oregon, Utah, or Washington.	0 - No 1 - Yes	I	I	I
Veterans' benefits	Eligible for veterans' benefits, i.e., Vietnam era veteran.	0 - No 1 - Yes	I	I	I
Suburb	Living in a Standard Metropolitan Statistical Area but outside the "central city."	0 - No 1 - Yes	I	I	I
Income	Family income.	Estimated from 14 income groups used in the survey.	I	I	I
Full-time employment	Working fulltime.	0 - No 1 - Yes	I	I	I
Job motivation	Taking the activity for specific job-related reasons.	0 - No 1 - Yes		I	I
Experience	Proportion of the activity completed at time of survey.			I	I
Weeks scheduled	Number of weeks the activity is scheduled.			I	I
Hours per week	Number of hours per week the activity is scheduled.			I	I

Table 1 (continued)

Variable names	Description/ question	Operational definition	Used in analysis of* Participation	Satisfaction	Persistence
Number of courses	Number of activities taken by individual.	0 - Taking only one 1 - Taking more than one		I	I
ABE course	Adult basic education activity.	0 - No 1 - Yes		I	I
College sponsor	Activity is sponsored by a 2- or 4-year college or university.	0 - No 1 - Yes		I	I
Occupational course	The activity is described as "Technical, vocational, managerial, or professional," or for diploma/degree credit.	0 - No 1 - Yes		I	I
Lecture format	The only method of instructional delivery is lectures.	0 - No 1 - Yes		I	I

*I - Independent variable
D - Dependent variable

Table 2. Variable Changes for Sub-Analyses

Sub-Analysis	Variables added	Variables deleted
Women in the labor force	Marital status Number of children	Sex
Unemployed	Length of unemployment	Full-time employment
Low SES.	-	Occupational status
Older adults	-	Veterans' benefits
College participation.	-	College sponsor
ABE/HSC.	-	ABE course Occupational status

however, had a fourth stage for parameters of the activity. For example, length of the course, intensity of the course, and the use of lectures were variables entered at the fourth level. Thus, after controlling for the demographic, situational, and dispositional characteristics of the individual, the model investigated how program characteristics affect persistence behavior.

Satisfaction. For satisfaction, the unit of analysis was again the activity. The independent variable was based on the participant's response to the question: "Which one of the following statements best describes how helpful the course or activity was in meeting your objective?" The possible responses were: "Much less helpful than expected."; "Somewhat less helpful . . ."; "As helpful . . ."; "Somewhat more helpful . . ."; and "Much more helpful . . .". Obviously, this is a relatively simplistic measure of satisfaction. It does not allow for complex responses. It does not provide for a distinction between types of satisfaction (e.g., content versus delivery). Nor does it provide for explanation (e.g., outside interference in meeting course requirements).

Nineteen independent variables were entered into an ordinary least-squares regression. All of the variables in the participation analysis were included in this regression. In addition, eight new variables were introduced. The causal model was similar to that used for the persistence analysis--demographic characteristics, education, situational, and dispositional characteristics were entered into the analysis in the first three stages. Then the effects of program characteristics on the expressed satisfaction of participants were examined.

FINDINGS

The study's findings are organized as follows. The first section presents an overall analysis of participation in American adult education based on a total sample of 74,385.[38] Next, we present selected findings of separate participation analyses for the following subgroups: older adults, lower SES adults, unemployed adults, employed women, participants in part-time higher education, and participants in adult basic education and high school completion programs. An overall analysis of attrition is presented next,

followed by separate analyses of attrition for the population subgroups enumerated above. The final section addresses the findings related to satisfaction.

Participation. The results of the multiple regression analysis (technically a two-group discriminant function analysis) are shown in Table 3. In interpreting the regression results, emphasis will be given to the standardized regression coefficients or Beta weights. In multiple regression, each independent variable in the equation is controlled on the independent variables that precede and follow it. The resulting Beta weight provides a measure of the "net" or independent effect of each independent variable. The ratio of indirect and/or spurious effects to direct effects can be roughly gauged by comparing the zero order correlation with Beta. It should be noted that neither the total variance accounted for (r^2) nor the weight of Beta is affected by the order of the independent variables in the equation. However, increments in r^2 due to the addition of each successive independent variable are affected by variable sequencing.

It should be noted that in Table 3 all the Betas are statistically significantly beyond the .01 level with the exception of full-time employment, which is significant at the .05 level. However, there is considerable variability in the magnitude of the Betas, indicating that certain variables have a greater direct impact on participation than others. Since the Betas are standardized values, they can be compared directly within the same equation in regard to their relative magnitude.

The first set of variables entered in the equation pertain to immutable individual characteristics that must logically be seen as prior in any attempt to infer causal sequence in regard to the determinants of participation. The findings are clear. Age has much more impact on participation than does sex or race.[39] Roughly speaking, it is five times as important as

Table 3. Summary of Multiple Regression Analysis:
Factors Affecting Participation in American Adult Education
N = 74,385

Independent variable	Multiple r	Simple r	Beta	F
Age	.18	-.18	-.11	757.41*
Race (black)	.19	.04	.02	37.35*
Sex (female)	.19	-.01	.03	47.89*
Schooling	.27	.25	.13	947.53*
Occupational status	.29	.19	.08	393.31*
Human services employment	.30	.16	.08	424.22*
West	.30	.08	.06	283.80*
Veterans' benefits	.31	.09	.06	270.64*
Suburb	.31	.06	.02	42.42*
Income	.31	.12	.02	17.76*
Full-time employment	.31	.12	.01	6.01†

*$p < .01$
†$p < .05$

sex or race in accounting for participation. As expected, the relationship of age to participation is negative; older adults, other correlated factors controlled (such as educational attainment), are less likely than are younger adults to participate in adult education. It is also noteworthy that, contrary to Johnstone and Rivera's findings, black adults are slightly more likely than non-blacks to participate with educational attainment, income, and similar variables controlled. Sex also emerges as a slight factor influencing participation, with women on the average more likely to participate than men. In terms of total variance explained, personal characteristics account for 4 percent or slightly less than half the total explained variance of approximately 10 percent.

Years of schooling or educational attainment was entered into the equation following the personal variables. It was assumed that in a causal sequence educational attainment logically follows personal characteristics and precedes status and situational variables such as occupation, income, and place of residence. As expected, this variable has more impact than any other in accounting for participation in adult education. It accounts for nearly a third of the variance explained, albeit this amounts in absolute terms to a modest 3 percent. The vast majority of adults of course cluster around the mean of 12 years of schooling. If we examine the extremes of the distribution, we note that the participation rate for persons with eight years of schooling is only 1.9 percent; in contrast, the rate for college graduates is 24.7 percent.

The remaining seven variables were entered into the regression equation at the same step since any assumptions about their causal order in relation to participation would have been at best highly speculative. The two variables that emerged as most significant were both related to occupation. High occupational status (managerial/professional occupation) affects participation to a fairly substantial degree. This is hardly surprising in view of the need of professionals and managers to maintain or enhance their skills and knowledge in a highly developed technological society. Not only does occupational status affect participation, but so too does the work setting. The impact on participation of employment in the human services sector (health, welfare, religion, and education) is equally as great as the impact of occupational status. This sector of the economy employs large numbers of professionals and semiprofessionals who feel a need or are required to upgrade their professional skills and credentials through continuing education.

Of the remaining variables, the one with perhaps the greatest policy significance is eligibility for veterans' benefits. Clearly, this targeted financial assistance program has a direct impact on participation in adult education. While the Beta for veterans' benefits is only half as large as the Beta for educational attainment, it is three times greater than the Betas for income and suburban residence. It will probably come as a surprise to many that income exerts such a small independent effect on participation. While it is certainly true that higher-income people are greatly overrepresented among the ranks of participants, income by itself has only a negligible direct effect on participation. Other factors correlated with income, such as educational attainment and occupational status, apparently exert more influence. Likewise, full-time employment status has a simple correlation with participation of .12, but a Beta of negligible significance. Finally, as was the case in the Johnstone and Rivera analysis, place of residence exerts a small but important effect on participation. With other possible explanatory variables controlled (e.g., educational

attainment, occupational status, income), the most plausible explanation is geographical access. The West Coast states, most notably California, have extensive community college systems with campuses accessible to most of the population. Likewise, suburban communities tend to provide greater access to adult education opportunities than do inner-city or rural communities.

For the total population, educational attainment and age exert the greatest independent effects on participation of all the variables included in this analysis. Occupational status and employment in the human services sector exhibit moderately strong positive effects on participation, as do eligibility for veterans' benefits and residence in one of the Western states. While statistically significant, the independent effects of sex, race, income, suburban residence, and full-time employment are small.

Women in the Labor Force. A separate regression analysis was computed for women in the labor force who were employed either full or part time, or were seeking employment. The total N for this group was 20,050. Of these, 3,234 (16.1 percent) were classified as participants. In addition to the basic independent variables that constituted the preceding regression model, marital status and number of dependents under age 18 were included for this subgroup. The Betas for labor force women show a pattern quite similar to that for the overall population. Educational attainment has the greatest direct effect (B=.16), followed by occupational status (B=.12), age (B=-.09), and employment in the human services sector (B=.08). Age for this group seems slightly less potent as a negative factor, while occupational status seems slightly more potent as a positive factor. Interestingly, full-time employment status, marital status (single versus married) and number of dependents under age 18 have no impact whatever on participation by women in the labor force. This particular analysis accounted for 11 percent of the variance.

Unemployed Adults. A similar analysis was undertaken for people who indicated they were unemployed. The subgroup constituted an N of 3,877 of whom 427 (11.0 percent) were classified as participants. Duration of unemployment was the only additional independent variable included in this analysis, and it proved to be statistically insignificant. The equation accounted for only 6 percent of the variance. On the whole, the pattern for this group was similar to the pattern for the total population: participation was positively and directly affected by educational attainment (B=.10), occupational status (B=.09), eligibility for veterans' benefits (B=.08), and residence in the West (B=.07). Participation was negatively affected by age (B=-.09). Race, income, suburban residence, and employment (that is former employment) in the human services sector had no direct effects on participation. This last finding runs counter to the general pattern in which human service employment has a substantial positive effect on participation. Another interesting finding is a fairly strong differential effect for sex (B=.06). Unemployed women are more likely than unemployed men to participate in adult education. The reason for this is not clear.

Low SES Adults. An effort was made to analyze participation patterns for the most disadvantaged stratum of the adult population. Low SES adults were defined as those with less than high school completion and with incomes falling within the lower quartile for the study population. The total N for the low SES subgroup was 5,073. Of these 333 or 2.2 percent were classified as participants. It is interesting that this participation rate is much lower than that for employed women (16.1 percent) or for unemployed (11.0 percent) people. It is also interesting that only an insignificant degree

of variance (3 percent) was explained in this particular analysis.

The regression results for the low SES subgroup depart considerably from the general pattern. One consistency, however, is a strong negative impact of age (B=-.10). The Betas for sex, race, income, and full-time employment status were statistically insignificant. Residence in the West, eligibility for veterans' benefits, and human services sector employment each had a slight positive effect on participation (B=.05, .05, .04 respectively). Suburban residence, contrary to the general pattern, had a slight (B=-.02) but statistically significant negative impact on participation by low SES adults. Most interesting, however, is the relatively slight impact of educational attainment for this group (B=.04). Noncompletion of high school appears to have a special impact on participation in adult education. Our cross-tabular analyses show that educational attainment bears no systematic relationship to participation until one has completed eight grades of schooling. At this level of attainment, 1.9 percent participate followed by 3.2 percent (ninth grade), 4.1 percent (tenth grade), and 5.9 percent (eleventh grade). However, with high school completion the participation rate surges to 10.9 percent.

Older Adults. In a separate regression analysis for older adults, the subsample was defined as people 60 years of age or older. The total N for people in this age range was 18,426. Of these, 510 (2.8 percent) were classified as participants. This is the lowest participation rate of any subgroup (except low SES adults) and stands in sharp contrast to the overall rate of 11.5 percent. Once again, the subgroup regression equation accounts for only a small portion of the variance--in this case, just under 4 percent. As one might expect, age shows less of an impact with this group of older adults than with the general population, but the association is still significant and still negative. The largest Beta, not surprisingly, is educational attainment (.10), closely followed by human services sector employment (.08). Interestingly, high occupational status, with a Beta of .03, is of relatively little consequence for this group. Also of little consequence, but statistically significant, are female sex status, residence in the West, and income. Statistically insignificant variables include race, suburban residence, and full-time employment status.

In short, the principal correlates of participation for older adults appear to be educational attainment and employment in the human services sector, with age, sex, occupational status, income, and Western residence contributing considerably less to the explained variance.

Part-Time Higher Education. The interest of policymakers in the growing demand for part-time higher education prompted us to conduct a separate analysis for participation in courses and other activities sponsored by two-year colleges and technical schools and four-year colleges and universities. Of the total N of 79,631, approximately 3,700 participated on a part-time basis in a course or other activity (not necessarily for credit) sponsored by a college or university.

The regression equation for this subgroup explains slightly more than 6 percent of the variance. Perhaps surprisingly, the Beta weight for age (B=-.07) ranked only fourth for this subgroup in contrast to second for the total population. For participation in college sponsored adult education, the most potent determinants were educational attainment (B=.11), employment in the human services sector (B=.10), and high occupational status (B=.08). Other statistically significant variables contributing meaningfully to the variance included eligibility for veterans' benefits (B=.04) and residence in the West (B=.05). Variables with statistically

insignificant or only marginally significant Betas included race, sex, income, and suburban residence. In summary, age has a somewhat less potent effect on participation in the context of college sponsored adult education, but its valence is still negative. Job status and job setting (human services sector) have considerable impact, as does educational attainment. Eligibility for veterans' benefits appears to exert slightly less influence on this type of participation than on participation in general.

Basic Education/High School Completion. Of the 46,560 adults who completed less than 12 years of schooling, 590 were identified as participants in adult basic education or high school completion programs. This represents an extremely low participation rate of 1.3 percent.

The regression analysis explained only 1.3 percent of the variance for this subgroup. Once again, age had a strong negative impact (B=-.08) on participation. Women, following the general pattern, were slightly more likely to participate in ABE/HSC than men (B=.03) while black adults, for the first time in these analyses, were slightly less likely to participate (B=-.02). Educational attainment, in a radical departure from the general pattern, exhibited no direct effect on participation in ABE/HSC. While the analysis was limited to adults with less than 12 years of schooling, this finding still strikes us as surprising. Other variables with a modest positive impact on ABE/HSC participation included eligibility for veterans' benefits (B=.04), residence in the West (B=.04), employment in the human services sector (B=.02), and suburban residence (B=.01). Full-time employment and income had no effects on participation for this subgroup.

Persistence. In analyzing the phenomenon of dropout behavior (or, put more positively, "persistence") we found that the data base contained many variables that could reasonably be postulated as having explanatory power. Consequently, this regression model contains 21 variables sequenced in four stages. The first-stage variables include the personal characteristics of age, sex, and race. The second stage included only one variable: educational attainment. The third stage included all status, situational, and attitudinal variables such as occupational status, suburban residence, and reason for enrolling in adult education. The variables entered in the fourth stage were all characteristics of the course or learning activity.

Looking first at personal characteristics, we note in Table 4 that age again has a strong impact. However, in this case the Beta weight is negative. Older adults are more likely to persist and less likely to drop out than younger adults. Black adults (B=.04) are slightly less likely to persist than non-blacks, while sex has no bearing on dropout behavior. Taken together, these variables account for slightly less than 1.5 percent of the variance.

Educational attainment, with a Beta of -.10, exerts a strong independent effect on persistence just as it did on participation. Clearly, people with more education are more likely to persist in adult education activities than are people with less education. Adding this variable doubles the amount of explained variance to .03.

When we turn to the attitudinal and situational variables entered in stage 3 of the equation, we note additional sharp departures from findings related to participation. Not surprisingly, satisfaction (rating of helpfulness of the course) emerges as the dominant factor with a Beta of -.16. Thus, with all other factors controlled, people who rate a course as helpful are more likely to persist than those who express dissatisfaction.

Table 4. Summary of Multiple Regression Analysis:
Factors Affecting Dropping Out of Courses and Other Learning Activities
N = 10,915

Independent variable	Multiple r	Simple r	Beta	F
Age	.11	-.11	-.10	114.31*
Race (black)	.11	.05	.04	15.81*
Sex (female)	.12	.03	-.02	1.84
Schooling	.18	-.14	-.10	69.50*
Satisfaction	.24	-.14	-.16	287.89*
Job motivation	.26	-.10	-.07	40.40*
Full-time employment	.27	-.11	-.06	29.33*
West	.27	.02	.03	10.49*
Occupational status	.27	-.13	-.01	0.73
Experience	.27	-.02	-.01	1.95
Suburb	.27	-.03	-.01	0.98
Human services employment	.27	-.09	-.01	1.15
Veterans' benefits	.27	.002	-.01	1.04
Income	.27	-.06	.01	0.92
Weeks scheduled	.29	.14	.10	112.45*
ABE course	.30	.13	.09	89.56*
Number of courses	.31	-.07	-.04	16.31*
College sponsor	.31	.01	.02	3.71
Lecture format	.31	-.04	-.01	1.12
Occupational course	.31	-.06	-.004	0.10
Number of hours per week	.31	-.04	-.003	0.10

*$p < .01$

While important in relation to the other variables in the equation, satisfaction accounts for only 2 percent of the variance (about one-fifth of the explained variance). One might expect that satisfaction would have an enormous influence on dropout behavior, but we do not find this to be true. Another interesting finding is that people who say that they enrolled for job-related reasons (Job motivation) are more likely than others to persist. Perhaps dropping out for these learners is seen as having important negative consequences for occupational upgrading. Perhaps, too, persons enrolled for job-related reasons experience greater external pressures (e.g., from employers) to participate and maintain participation in adult education activities. It is also interesting that full-time employment status has a direct impact on dropout behavior. People who are employed full time are more likely to persist than are others. Why this is so is not immediately evident. Another puzzling finding is that adults who live

in the Western states are less likely to persist than are adults who live elsewhere in the country. Of the nonsignificant stage 3 variables, two merit comment. Although they showed a moderately strong positive impact on participation, occupational status and employment in the human services sector have no discernible impact on persistence. Three other variables that had a modest impact on participation also evidence no impact on persistence. They are suburban residence, eligibility for veterans' benefits, and income. Finally, it might be noted that "Experience," a variable designed to measure amount of personal contact with the course in question (hours completed divided by hours scheduled per week times number of weeks scheduled) had no impact on persistence. Thus, people are no more or no less likely to drop out at the beginning or end of a course.

The last set of variables pertain to attributes of the course or learning activity itself. Inspection of Table 4 reveals that two such variables have a moderately large impact on persistence. Not surprisingly, the duration in weeks of the course or other learning activity is negatively associated with persistence. Thus, as practitioners have asserted for many years, longer courses yield more dropouts. As we expected, too, adults enrolled in courses classified as adult basic education are considerably more likely to drop out than are others. While such students are, in general, educationally and economically disadvantaged, and disproportionately black, all of these factors are controlled in the regression equation and thus we must look elsewhere for an explanation. Perhaps the reasons have to do with the threat, difficulty, and frustration often experienced by adults in these programs.[40] Number of courses is the only other variable in this set with a statistically significant effect on persistence. Interestingly, there is a tendency for part-time learners who take more than one course to persist. This may be partly caused by the fact that part-time college students often take more than one course and are under more pressure to persist than are others. Moreover, some adults tend to participate regularly, often in more than one activity.[41] The nonsignificant variables in this set included college sponsorship of the course, whether the course was conducted in lecture format, and number of hours per week the course was scheduled.

In summary, a large number of variables appear to affect persistence, with learner satisfaction having considerably greater impact than the others. In regard to personal characteristics, older adults are more likely and blacks less likely to persist. Educational attainment affects persistence in the manner one would expect: Adults with more schooling are more likely to persist than are adults with less schooling. Situational and attitudinal variables also affect dropout behavior. In addition to learner satisfaction, job-related motivation for participation and full-time employment status are positively related to persistence. Certain characteristics of the course or learning activity itself are also significant. Adults are considerably less likely to persist in a course that is classified as adult basic education and in courses of relatively long duration in weeks. Finally, adults who take more than one course are more likely to persist than adults who take one course only.

Women in the Labor Force. A separate regression analysis for women employed full or part time yielded results very similar to those for the total population. As with the total group, satisfaction had the greatest impact on persistence (B=-.16). Race, however, while significant for the total group was not significant for employed women. Employed black women are no more likely to drop out than employed non-black women. Two other

departures from the pattern for the total population deserve comment. While occupational status had no effect on persistence for the entire population, among employed women those employed in lower status jobs (nonmanagerial, nonprofessional) were less likely to persist (B=-.05). Similarly, women employed in the human services sector were slightly more likely to persist than women employed in other sectors, a finding that did not obtain for the total population. A total of 9 percent of the variance was accounted for in this analysis.

Unemployed Adults. A separate regression analysis for unemployed adults explained considerably more of the variance (15 versus 9 percent) than did the analysis for the total population. For this group, age had a relatively large Beta (-.17), indicating that older unemployed participants are less likely to drop out than are their younger counterparts. The Betas for sex and race were insignificant. However, educational attainment (B=-.19) showed a clear tendency for those with relatively less schooling to drop out. Once again, satisfied participants were less likely than dissatisfied participants to drop out (B=-.16), as were those participants who indicated they had enrolled for nonjob-related reasons (B=-.12). In regard to course-related characteristics, the only significant finding was that people enrolled for courses of longer duration were less likely than others to persist. In general, the pattern for unemployed adults differs little from that for the total population.

Low SES Adults. Our analysis for the low SES group reveals a number of factors that affect dropout behavior. To our surprise, we were able to explain a substantial portion of the variance (r^2=.39)--about four times as much as we could account for in the total population. In regard to personal characteristics, age (B=-.28) and race (B=.15) account for 12 percent of the variance, but sex virtually none. Thus, among the disadvantaged, younger adults are considerably more likely to drop out and blacks slightly more likely than non-blacks to do so. For this group educational attainment had no direct impact, a result probably affected by our defining low SES in part by noncompletion of high school. In keeping with the general pattern, residence in one of the Western states had a slight negative effect on course completion.[42] Of the remaining situational, status, and attitudinal variables (e.g., full-time work, occupational status, income, job-related motivation) none were statistically significant. What is particularly noteworthy here is that satisfaction--in our other analyses a major factor--bore no relationship to persistence.

While satisfaction has no bearing on persistence for low SES adults, the nature of the learning activity very definitely does. Specifically, the duration of the course or program has a large impact on persistence (B=.34). Low SES participants in courses or programs of relatively long duration are quite likely to drop out. Moreover, the content of the course or program exerts strong effects independent of duration. Low SES adults are very likely to drop out of courses or programs classified as basic education (B=.31) or occupational education (B=.25). Since the majority of disadvantaged adults who participate in adult education participate in basic education or occupational training, these results are not surprising. However, they serve to pinpoint and underscore the magnitude of the dropout problem associated with these forms of adult education--a problem noted many times in the literature.[43] One thing new these results suggest is that dissatisfaction (perception that a course is not helpful) does not figure prominently in the dropout behavior of

low SES adults. What does figure prominently is an extended time commitment and certain unidentified factors inherent in, or associated with, participation in ABE or occupational training. These later factors are undoubtedly multiple and complex, but we suggest that they include external barriers to attendance, such as change of residence or job or family situation, and "internal" barriers such as frustration and discouragement with learning, the blame for which disadvantaged adults tend to assign to themselves, and not to their teachers.[44]

Older Adults. A regression analysis for older adults (60 or over) explained 13 percent of the variance compared with 9 percent for the total population. When we look only at older adults, the association between age and persistence is reversed: For people 60 or over, increased age is associated with dropping out (B=.13); for the general population, in contrast, increased age is associated with persistence. Another interesting finding is that black older adults are less likely than non-blacks to persist (B=.12). The sex of older people, however, has no effect on their dropout behavior.

For older adults, satisfaction is clearly the major variable affecting persistence (B=-.19). The most plausible explanation is that older people in general experience less compulsion (e.g., pressure from employers) to persist in adult education activities that they view as unhelpful in meeting their own needs.

Of the remaining variables, only two--college sponsorship (B=.11) and occupational program (B=-.14)--affected dropout for this subgroup. Those involved in occupationally related education (including high school and college credit courses) were more likely to persist, while those who participated in college-sponsored activities were less likely to do so. Perhaps the most significant finding is that educational attainment does not affect the persistence behavior of older adults. The conventional wisdom is that educationally disadvantaged older adults are more likely to drop out from courses or programs, but this apparently is not the case. Perhaps this can be partly explained by the fact that older adults are not likely to participate in academic kinds of programs where educational deficits pose a greater handicap.

Part-Time Higher Education. A separate analysis was conducted for part-time participants in courses or other learning activities, both credit and noncredit, sponsored by two- and four-year colleges and universities. For this subgroup, the regression analysis explained 9 percent of the variance, the same as the amount explained for the total population.

Personal characteristics explained only 1 percent of the variance. Following the general pattern, older adults are more likely to persist (B=-.10) than younger adults. Interestingly, women were slightly more likely to persist than men, and black adults slightly less likely to persist than non-blacks. As one would expect, educational attainment was a significant factor in accounting for persistence in a college context (B=-.13), accounting for nearly 3 percent of the explained variance. Equally significant, with another 3 percent of the variance and a Beta of -.16, was satisfaction. Less satisfied participants were less likely to persist. Not surprisingly, persons employed full time (B=-.08) and persons enrolled for job-related reasons (B=-.06) were less likely to drop out than others. Similarly, in regard to course characteristics, persons enrolled in occupationally related courses or programs (including all credit enrollments) were less likely than others to drop out. Following the general pattern, persons enrolled in longer courses were more likely

to drop out (B=.07) while persons enrolled for more than one course were less likely to drop out (B=-.05).

Basic Education/High School Completion. The regression equation for adults classified as participating in adult basic education or high school completion courses explained a fairly substantial 23 percent of the variance associated with persistence. Much of the variance explained could be attributed to educational attainment. ABE/HSC participants with more schooling are much more likely than those with less schooling to persist (B=-.35). Once again, older adults are slightly less likely to drop out (B=-.18) while sex has no effect one way or the other. Black adults, however, are somewhat less likely to persist than are non-blacks. Satisfaction has a modest direct effect on persistence (B=-.12), with less satisfied adults more likely to drop out. As was the case with unemployed people and with low SES adults, residence in the West (B=.10) has a moderate negative impact on persistence. Finally, those who give job-related reasons for participation are somewhat less likely than others to drop out (B=-.10).

The large impact of educational attainment on the ABE dropout phenomenon is hardly surprising since ABE puts heavy emphasis on academic skills development. Those with little past schooling are obviously at a disadvantage. The impact of schooling on persistence in ABE/HSC programs is underscored when one considers that its Beta weight is nearly three times greater than the Beta weight for satisfaction, and almost twice as great as the Beta weight for age.

Satisfaction. In the previous analysis of persistence, learner satisfaction was viewed as an independent variable because it was presumed to affect the learner's decision to continue with or drop out of an educational activity. In this section, however, satisfaction is treated as a dependent variable and an attempt is made to identify the factors that influence degree of satisfaction among adult learners.

The regression model used to study learner satisfaction included all sociodemographic and situational measures employed in previous analyses of participation and persistence. All of the course-related variables included in the persistence equation were also included in this one, with the exception of number of courses. Despite the large number of variables included in this regression, we were able to explain only 2.7 percent of the variance associated with satisfaction (compared with 9.5 percent for participation and 9.4 percent for persistence). Because the amount of explained variance is so small, the discussion of the findings will be brief and focused principally on those variables with statistically significant effects for the total population.

As Table 5 shows, all the personal variables entered in the first stage of the regression equation had statistically significant but small positive effects on satisfaction. Race, interestingly, exerts a stronger influence than the other personal variables, with black adult learners reporting more satisfaction than non-black learners. Older adults and women are more satisfied than are younger adults and men, although these effects are slight. Somewhat surprisingly, educational attainment has a negative impact on satisfaction. People with more schooling are less satisfied than are those with less schooling, perhaps partly because they are more educationally experienced. Turning to the situational and attitudinal variables entered in stage 3, it is perhaps surprising to note that none of them is significant other than residence in the West, which has a slight positive impact on satisfaction. Finally, of the course-

Table 5. Summary of Multiple Regression Analysis:
Factors Affecting Learner Satisfaction in Adult Education
N = 13,385

Independent variable	Multiple r	Simple r	Beta	F
Race (black)	.07	.07	.07	67.31*
Age	.09	.05	.04	17.49*
Sex (female)	.10	.06	.03	10.49*
Schooling	.13	-.08	-.05	19.44*
West	.13	.03	.03	10.83*
Job motivation	.13	-.04	.004	0.14
Occupational status	.13	-.06	-.02	3.71
Veterans' benefits	.13	-.04	-.01	1.16
Income	.13	-.03	-.01	2.01
Experience	.13	-.01	-.01	1.03
Human services employment	.13	-.01	.02	3.13
Full-time employment	.13	-.05	.002	0.05
Suburb	.13	-.01	.004	0.21
College sponsor	.15	-.08	-.04	21.20*
Number of hours per week	.16	.04	.06	41.16*
Occupational course	.16	-.08	-.07	37.12*
ABE course	.16	.02	-.02	3.03
Weeks scheduled	.16	.01	.01	2.56
Lecture format	.16	-.01	.01	0.74

*$p < .01$

related variables entered in the last stage of the analysis, only three have an impact on satisfaction. Interestingly, people enrolled in courses sponsored by a college or university are more likely than others to be dissatisfied as are those who are enrolled in occupationally related courses or programs, including courses taken for credit. Also interesting is the finding that number of hours scheduled per week has a positive impact on satisfaction. It appears that adults are somewhat more satisfied with courses or other learning activities that are concentrated in larger rather than smaller blocks of time.

While the findings raise some interesting questions for further research, the effects of the factors considered here are so slight as to have little practical significance. The negative ratings received by college and university sponsors of adult education seems to be one area that merits further inquiry. It is also interesting to note that race affects satisfaction and persistence differentially, with black adults more likely to drop out but less likely to be dissatified than non-blacks. This finding supports our earlier contention that satisfaction plays a

relatively minor role in decisions to persist or drop out of adult learning activities.

Women in the Labor Force. Paralleling the pattern for the total population, employed black women were more likely to be satisfied (B=.10) as were older employed women (B=.05), while those with more schooling (B=-.05) and higher incomes (B=-.04) were less likely to be satisfied. Hours scheduled per week also exhibited a positive impact on satisfaction for this subgroup (B=.07), and occupational program participation had a negative impact (B=-.07). Three percent of the variance was explained in this analysis.

Unemployed Adults. The analysis for this subgroup explained a more substantial 10 percent of the variance, but only three variables were statistically significant. Black unemployed adults were more satisfied (B=.10) and, interestingly, those who had more experience in the course were less satisfied (B=-.10) as were those who had enrolled in occupational programs (B=-.18).

Low SES Adults. The regression equation explained 7 percent of the variance, but only one variable--educational attainment--had a statistically significant Beta (B=.12). Interestingly, educational attainment had the opposite effect for low SES adults in comparison to the total population, with better educated low SES adults more likely to be satisfied than those with less schooling.

Older Adults. Surprisingly, we were able to explain only a miniscule portion of the variance associated with satisfaction for adults 60 years of age and older. None of the Betas was statistically significant. Thus we can say only that none of the variables included in the regression analysis had any direct impact on satisfaction for this population subgroup.

Part-Time Higher Education. While we were able to explain only 2 percent of the variance for this subgroup (participants in part-time higher education--credit and noncredit), eight variables were statistically significant. The pattern of effects for this group closely resembled that of the general population. The following variables had a positive direct impact on satisfaction: black racial status (B=.09), female sex status (B=.04), age (B=.04), and number of hours course was scheduled to meet per week (B=.06). Educational attainment, experience in the course, number of weeks scheduled, and occupational program all exerted negative effects on satisfaction for this group (B=-.04, -.05, -.04, -.04, respectively).

Basic Education/High School Completion. Our analysis of expressed satisfaction for adults enrolled in ABE and HSC programs again explains only a small fraction of the variance (4 percent). Two variables were statistically significant: race and full-time employment status. Black adults, once again, were more likely than non-blacks to be satisfied (B=.10). This is particularly interesting inasmuch as blacks were more likely than non-blacks to drop out from the ABE/HSC programs. Adults employed full time, on the other hand, were less likely than others to be satisfied with ABE/HSC programs (B=-.13). Employed adults almost invariably participate in courses offered at night, which may in part explain their greater dissatisfaction.

Table 6. Summary Table: Direct Effects on Participation of Key Variables for Total Population and Selected Subgroups

Independent variable	Total population	Low SES	Older adults	Employed women	Unemployed adults	Higher education participants	ABE/HSC participants
Age.	-2	-2	-1	-2	-1	-2	-2
Race (black)	+1	0	0	+1	0	+1	-1
Sex (female)	+1	0	+1	NA	+1	+1	+1
Schooling.	+2	+1	+2	+2	+1	+2	0
Occupational status.	+2	NA	+1	+2	+1	+2	0
Human services . . .	+2	+1	+2	+2	0	+2	+1
West	+2	+1	+1	+2	+1	+2	+1
Veterans' benefits .	+2	+1	NA	NA	+1	+2	+1
Suburb	+1	-1	0	+1	0	0	+1
Income	+1	0	+1	0	0	-1	0
Full-time employment	0	0	0	0	NA	0	0

Key:
+2 = Strong positive impact (beta more than 10 times its standard error).
+1 = Moderate positive impact (beta 2-9 times its standard error).
-2 = Strong negative impact (beta more than 10 times its standard error).
-1 = Moderate negative impact (beta 2-9 times its standard error).
0 = No impact. Beta statistically insignificant.
NA = Variable omitted for particular subgroup.

Participation. Table 6 presents a simple graphic summary of the findings related to participation. In reviewing the table it should be kept in mind that it portrays the direct or controlled effects of each independent variable for each subgroup. Thus, for example, family income has only a modest direct effect on participation for three of the seven groups. This does not mean that higher income adults are not more likely to participate than lower income adults; in fact, they very definitely are. It does mean, however, that income alone has very little direct impact on participation. Since income, educational attainment, and occupational status are interrelated and the latter two variables have been shown through the regression analysis to have considerable impact on participation, we may conclude that it is the educational and occupational status of higher income adults that is associated with their greater propensity to participate.

In regard to variables included in previous large-scale studies, our findings confirm some of the somewhat tenuous conclusions of Johnstone and Rivera that were based on less powerful techniques of multivariate analysis. Age and educational attainment are clearly dominant factors in accounting for participation, with educational attainment somewhat more potent than age for the total population. While less powerful than educational attainment, occupational status does have a substantial direct effect of its own--apparently a greater effect than Johnstone and Rivera believed it had. Income--as Johnstone and Rivera also concluded--has little direct impact on participation. Residence in one of the Western states, as Johnstone and Rivera asserted, has a moderately strong direct effect on participation, while suburban residence has only a weak direct effect. Two findings, however, contradict earlier conclusions set forth by Johnstone and Rivera. For the total population, black racial status has a small positive impact on participation as does female sex status. The first finding is perhaps surprising, but it probably reflects changes in American society and educational opportunity for the disadvantaged that occurred since 1962 when the Johnstone and Rivera survey was conducted. It should be noted, however, that black racial status has a slight negative impact on participation in ABE/HSC programs designed to meet the needs of educationally and economically disadvantaged adults.

Two findings of the present study are new and seemingly important. The first is that type of employment has a significant independent effect on participation in adult education. Specifically, people employed in the service industries of health, education, welfare, and religion are more likely to participate than are people employed in other sectors of the economy. Thus, the work setting itself affects participation independently of occupational status and personal characteristics. A second new finding is that eligibility for veterans' benefits has a moderately strong impact on participation; in fact, it is only slightly less potent than occupational status. Consequently, this targeted educational entitlement program appears to have had some success in promoting participation in adult education.

As shown in Table 6, the effects of the independent variables tend to be similar across population subgroups. Some variables, however, exhibit unstable and generally weak effects--for example race, suburban residence, and income. Age is a less potent negative factor for older and for unemployed adults, and educational attainment a less potent positive factor for lower SES adults. Moreover, schooling has no effect at all on ABE/

Table 7. Summary Table: Direct Effects on Persistence of Key Variables for Total Population and Selected Subgroups

Independent variable	Total population	Low SES	Older adults	Employed women	Unemployed adults	Higher education participants	ABE/HSC participants
Age.	+2	+1	-1	+1	+1	+1	+1
Race (black)	-1	-1	-1	0	0	-1	-1
Sex (female)	0	0	0	NA	0	+1	0
Schooling.	+1	0	0	+1	+1	+1	+1
Occupational status. .	0	NA	0	+1	0	0	NA
Human services	0	0	0	+1	0	0	0
West	-1	-1	0	0	-1	0	-1
Veterans' benefits . .	0	0	NA	NA	0	0	0
Suburb	0	0	0	0	0	0	0
Income	0	0	0	0	0	0	0
Full-time employment	+1	0	0	+1	NA	+1	0
Job motivation	+1	0	0	+1	+1	+1	+1
Satisfaction	+2	0	+1	+2	+1	+2	+1
Number of weeks scheduled	-2	-1	0	-1	-1	-1	0

Key:
+2 = Strong positive impact on persistence (beta more than 10 times its standard error).
+1 = Moderate positive impact on persistence (beta 2-9 times its standard error).
-2 = Strong negative impact on persistence (beta more than 10 times its standard error).
-1 = Moderate negative impact on persistence (beta 2-9 times its standard error).
0 = No impact on persistence. Beta statistically insignificant.
NA = Variable omitted for particular subgroup.

HSC participation, a finding we did not anticipate.

Persistence and Satisfaction. Table 7 summarizes our findings regarding persistence. If compared with Table 6, it is immediately evident that many of the variables that affect participation have little impact on persistence. Furthermore, age, which has a strong negative effect on participation, exhibits a substantial positive impact on persistence. It is also interesting to note that educational attainment, which had potent positive effects on participation, has only weak and unstable effects on persistence. Black racial status, moreover, has a modest positive effect on participation, but a modest negative effect on persistence. A similar reversal also obtains for residence in one of the Western states. Finally, occupational status, human services sector employment, income, suburban residence, and eligibility for veterans' benefits have little or no impact on persistence, although all of these variables are at least modestly associated with participation.

With the exception of age, sociodemographic variables appear to have little impact one way or the other on persistence. However, a few variables more directly connected with the activity of learning were found to exert at least some slight effects on persistence. For the total population and for four of the six subgroups, enrolling for job-related reasons had a positive impact on persistence. This variable probably taps both strength of motivation and external sanctions that reinforce persistence for job-related continuing education. It should also be noted that those participating in courses of longer duration are less likely than others to persist--a finding that is hardly surprising. Also not surprising is the fact that course satisfaction exerts a substantial effect on persistence. Those who find a course or learning activity less helpful than anticipated are more likely to drop out. Although satisfaction is the most potent variable in this regression model, in an absolute sense its potency is not great--the entire regression equation accounted for only 9 percent of the variance associated with persistence. While it is not possible to arrive at an exact figure, it is probable that satisfaction accounts for no more than a third of the 9 percent of the variance explained in the equation. Thus, this variable perhaps explains 3 percent of the total variance associated with persistence. Even if the variance estimates are far too low, and the measure of satisfaction used crude and subject to positive bias, it still seems that dissatisfaction with the course itself is a minor factor in the dropout problem that is so pervasive.

When we look at satisfaction as a dependent variable, we find that our regression model can explain only an insignificant degree of the variance. However, as Table 8 shows, a few variables have weak but fairly consistent effects across all subgroups. These include age, which has a positive impact on satisfaction for four of the seven subgroups, black racial status, which also has a weak positive impact for four groups, and schooling, which exerts a weak negative impact for three groups and a weak positive impact for the low SES group. Turning to course-related variables, it is interesting that number of hours scheduled per week has a positive impact on satisfaction (for three groups), while enrollment in courses classified as occupational, including all credit courses, is negatively related to satisfaction. For the unemployed and for higher education participants, "experience" has a weak negative effect on satisfaction. Thus, for these groups, the more contact or experience the learners have with the course the more likely they are to be dissatisfied, a disheartening finding.

Table 8. Summary Table: Direct Effects on Learner Satisfaction of Key Variables for Total Population and Selected Subgroups

Independent variable	Total population	Low SES	Older adults	Employed women	Unemployed adults	Higher education participants	ABE/HSC participants
Age.	+1	0	0	+1	+1	+1	0
Race (black)	+1	0	0	+1	0	+1	+1
Sex (female)	+1	0	0	NA	0	+1	0
Schooling.	-1	+1	0	-1	0	-1	0
Occupational status. .	0	NA	0	0	0	0	NA
Human services	0	0	0	0	0	0	0
West	0	0	0	0	0	0	0
Veterans' benefits . .	0	0	NA	0	0	0	0
Suburb	0	0	0	0	0	0	0
Income	0	0	0	-1	0	0	0
Full-time employment	0	0	0	0	NA	0	-1
Job motivation	0	0	0	0	0	0	0
Number of weeks scheduled	0	0	0	0	0	-1	0
College sponsor. . . .	-1	0	0	0	0	NA	0
Number of hours per week.	+1	0	0	+1	0	+1	0
Occupational course. .	-1	0	0	-1	-1	-1	0
Experience	0	0	0	0	-1	-1	0

Key:
+1 = Moderate positive impact on satisfaction (beta 2-9 times its standard error).
-1 = Moderate negative impact (beta 2-9 times its standard error).
0 = No impact on satisfaction. Beta statistically insignificant.
NA = Variable omitted for particular subgroup.

Notes

1. National Center for Education Statistics, Participation in Adult Education: Final Report, 1975. Washington, D.C.: U.S. Government Printing Office, 1978.

2. The word "effect" is used here in its statistical sense and is not necessarily meant to imply causality.

3. Participation in Adult Education, 1975, p. 4.

4. Ibid., p. 4.

5. Ibid., p. 5.

6. Ibid., p. 6.

7. Mezirow, J., Darkenwald, G., and Knox, A., Last Gamble on Education: Dynamics of Adult Basic Education. Washington, D.C.: Adult Education Association of the U.S.A., 1975.

8. Dhanidina, L., and Griffith, W., "Costs and Benefits of Delayed High School Completion." Adult Education, 25 (Summer 1975).

9. Boshier, R., "Factor Analysts at Large: A Critical Review of the Motivational Orientation Literature." Adult Education, 27 (Fall 1976).

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12. Irish, G., Persistence and Dropout in Adult Education: Its Relationship to Differential Reinforcement of Attendance. Unpublished doctoral dissertation. New York: Teachers College, Columbia University, 1978.

13. Darkenwald, G., "Some Effects of the 'Obvious Variable': Teacher's Race and Holding Power with Black Adult Students." Sociology of Education, 48 (Fall 1975).

14. Johnstone, J., and Rivera, R., Volunteers for Learning: A Study of the Educational Pursuits of American Adults. Chicago: Aldine Publishing Co., 1965.

15. Ibid., pp. 32-33.

16. Carp, A., Peterson, R., and Roelfs, P., "Adult Learning Interests and Experiences," in K. Cross and J. Valley (eds.), Planning Non-Traditional Programs. San Francisco: Jossey-Bass, 1974.

17. National Center for Education Statistics, Participation in Adult Education: Final Report, 1969. Washington: U.S. Government Printing Office, 1974; NCES, Participation in Adult Education: Final Report, 1972. Washington: U.S. Government Printing Office, 1976; NCES, Participation in Adult Education: Final Report, 1975. Washington: U.S. Government Printing Office, 1978.

18. Froomkin, J., and Wolfson, R., Adult Education 1972, A Re-Analysis. Washington, D.C.: Joseph Froomkin, Inc., 1977.

19. Volunteers for Learning, p. 76.

20. Ibid., pp. 95-104.

21. Carp, A., et. al., "Adult Learning Interests and Experiences," p. 16.

22. Volunteers for Learning, pp. 100-103.

23. Ibid., p. 114.

24. Ibid., p. 112.

25. Participation in Adult Education: Final Report, 1975, pp. 41-42.

26. Volunteers for Learning, pp. 88-95.

27. Persistence and Dropout in Adult Education.

28. Knox, A., and Sjogren, D., "Achievement and Withdrawal in University Adult Education Classes." Adult Education, 15 (Winter 1965), pp. 74-88.

29. Boshier, R., "Educational Participation and Dropout: A Theoretical Model." Adult Education, 23 (Summer 1973).

30. Persistence and Dropout in Adult Education.

31. Participation in Adult Education: Final Report, 1975 and Adult Education 1972, A Re-Analysis, 1977.

32. Adult Education 1972, A Re-Analysis, 1977, pp. 68-76.

33. Volunteers for Learning, p. 160.

34. Participation in Adult Education: Final Report, 1972.

35. For detailed information on sampling procedures and error estimates, see Jones, Charles D., "Source and Reliability for Tabulations on Participation in Adult Education, 1975." Washington, D.C.: Bureau of the Census, March 1977.

36. Blau, Peter M., The Organization of Academic Work. New York: John Wiley & Sons, Inc., 1973, p. 35.

37. Because some individuals in the data base enrolled in more than one activity, the use of the activity as the unit of analysis violates the general assumption of regression regarding independent observations. The decision the researchers faced was to throw out valuable data or to stretch the assumption of independent observations. The decision was to retain all the data and then compare the results with the same regression in which nonindependent observations were omitted. When this check was made, the

results were essentially identical. Thus, the nonindependence of some of the observations does not affect the results or the conclusions.

38. Because data were missing for income, 5,246 of the original 79,631 cases had to be dropped from the study.

39. Strictly speaking, the analysis does not demonstrate that age has any "impact" on participation. Since the research is based on a correlational design, the results show only that age is associated with participation when other variables are controlled. Terms with causal connotations such as "impact" and "effect" are used in their statistical sense only, and should not be interpreted as implying causality.

40. For a discussion of these problems see Last Gamble on Education: Dynamics of Adult Basic Education, Ch. 2 and 3.

41. For a discussion of this phenomenon see Houle, C.O., The Inquiring Mind. Madison, Wisconsin: University of Wisconsin Press, 1961.

42. Could it be that where educational opportunities are easily accessible and cost little or nothing, a greater proportion of the learners are less serious or committed to learning?

43. See, for example, Last Gamble on Education: Dynamics of Adult Basic Education.

44. Ibid.

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